

AMENDMENTS TO THE CLAIMS:

1. (Currently Amended) A method for providing cascaded network packet search engines, comprising:

receiving a search command at each one of a plurality of network packet search engines, the search command comprising a specific search key;

determining at each one of the network packet search engines a longest prefix match based on the specific search key;

determining at one of the network packet search engines whether its determined longest prefix match comprises an overall longest prefix match among the other determined longest prefix matches of the other network packet search engines; and

responding to the search command when its determined longest prefix match comprises the overall longest prefix match, wherein responding to the search command comprises a one of:

retrieving data from memory and transmitting the retrieved data, and
storing data to memory.

2. (Canceled).

3. (Previously Presented) The method of Claim 1, responding to the search command comprising actively responding to the search command.

4. (Previously Presented) The method of Claim 1, responding to the search command comprising passively responding to the search command.

5. (Original) The method of Claim 1, further comprising storing a mock result when the longest prefix match fails to comprise the overall longest prefix match.

6. (Previously Presented) The method of Claim 1, the one of the network packet search engines comprising a peripheral network packet search engine, determining whether its determined longest prefix match comprises the overall longest prefix match comprising:

receiving longest match input data from an adjacent network packet search engine;
comparing the longest match input data to its determined longest prefix match; and
determining that its determined longest prefix match is longer than the longest match input data.

7. (Previously Presented) The method of Claim 1, the one of the network packet search engines comprising a central network packet search engine, determining whether its determined longest prefix match comprises the overall longest prefix match comprising:

receiving first longest match input data from a first adjacent network packet search engine and second longest match input data from a second adjacent network packet search engine;

comparing the first longest match input data to its determined longest prefix match and the second longest match input data to its determined longest prefix match; and

determining that its determined longest prefix match is longer than the first longest match input data and longer than the second longest match input data.

8. (Currently Amended) A method for providing cascaded network packet search engines, comprising:

receiving a search command at each one of a plurality of network packet search engines, the search command comprising a specific search key;

at each of the network packet search engines, determining a longest prefix match for the network packet search engine based on the specific search key;

at each of the network packet search engines, determining whether its longest prefix match comprises an overall longest prefix match among the other determined longest prefix matches of the other plurality of network packet search engines; and

responding to the search command based on the determination that the longest prefix match of the network packet search engine comprises the overall longest prefix match, wherein responding to the search command comprises a one of:

retrieving data from memory and transmitting the retrieved data, and

storing data to memory.

9. (Original) The method of Claim 8, responding to the search command comprising actively responding to the search command.
10. (Original) The method of Claim 8, responding to the search command comprising passively responding to the search command.
11. (Original) The method of Claim 8, further comprising storing a mock result based on the determination that the network packet search engine fails to comprise the overall longest prefix match.
12. (Previously Presented) The method of Claim 8, determining whether the determined longest prefix match comprises the overall longest prefix match comprising, for each peripheral network packet search engine:
 - receiving longest match input data from an adjacent network packet search engine;
 - comparing the longest match input data to the determined longest prefix match; and
 - determining whether the determined longest prefix match is longer than the longest match input data.

13. (Previously Presented) The method of Claim 8, determining whether the determined longest prefix match comprises the overall longest prefix match comprising, for each central network packet search engine:

receiving first longest match input data from a first adjacent network packet search engine and second longest match input data from a second adjacent network packet search engine;

comparing the first longest match input data to the determined longest prefix match and the second longest match input data to the determined longest prefix match; and

determining whether the determined longest prefix match is longer than the first longest match input data and longer than the second longest match input data.

14. (Previously Presented) A method for operating a network processing unit coupled to a plurality of network packet search engines, comprising:

 sending a search command to each one of the plurality of network packet search engines; and
 receiving a response to the search command from a single one of the network packet search engines, the single network packet search engine comprising an overall longest prefix match among the plurality of network packet search engines independently of position relative to the other network packet search engines.

15. (Original) The method of Claim 14, receiving a response to the search command comprising receiving an active response to the search command.

16. (Original) The method of Claim 14, receiving a response to the search command comprising receiving a passive response to the search command.

17. (Currently Amended) A network packet search engine coupled to at least one other network packet search engine, the network packet search engine operable to:

 receive a search command, the search command comprising a specific search key,
 determine a longest prefix match based on the specific search key,
 determine whether its longest prefix match comprises an overall longest prefix match among another longest prefix match determined by the at least one other network packet search engine, and

respond to the search command based on the determination that the longest prefix match of the network packet search engine comprises the overall longest prefix match, wherein respond to the search command comprises a one of:

retrieve data from memory and transmitting the retrieved data, and
store data to memory.

18. (Original) The network packet search engine of Claim 17, further operable to actively respond to the search command.

19. (Original) The network packet search engine of Claim 17, further operable to passively respond to the search command.

20. (Previously Presented) The network packet search engine of Claim 17, the network packet search engine comprising a peripheral network packet search engine and further operable to:

determine whether its determined longest prefix match comprises the overall longest prefix match by receiving longest match input data from an adjacent network packet search engine, comparing the longest match input data to its determined longest prefix match, and determining whether its determined longest prefix match is longer than the longest match input data.

21. (Previously Presented) The network packet search engine of Claim 17, the network packet search engine comprising a central network packet search engine and further operable to:

determine whether its determined longest prefix match comprises the overall longest prefix match by receiving first longest match input data from a first adjacent network packet search engine and second longest match input data from a second adjacent network packet search engine, comparing the first longest match input data to its determined longest prefix match and the second longest match input data to its determined longest prefix match, and determining whether its determined longest prefix match is longer than the first longest match input data and longer than the second longest match input data.

22. (Previously Presented) A processing system, comprising:

a network processing unit; and

a plurality of network packet search engines coupled to the network processing unit, each network packet search engine operable to:

receive a search command from the network processing unit, the search command comprising a specific search key,

determine a longest prefix match based on the specific search key,

determine whether its determined longest prefix match comprises an overall longest prefix match among the other determined longest prefix matches of the other plurality of network packet search engines, and

respond to the search command based on the determination that the longest prefix match of the network packet search engine comprises the overall longest prefix match.